

wherein said substance having biocompatibility that can be degraded and absorbed in the body is fibrous collagen fiber or a substance selected from the group consisting of polyglycolic acid, polylactic acid, copolymer of glycolic acid and lactic acid, polydioxanone, copolymer of glycolic acid and trimethylene carbonate, and a mixture of polyglycolic acid and polylactic acid,

wherein said non-woven fabric-like multi-element structure of collagen fibers is composed of collagen plate fibers having a diameter of 20-50 μm randomly intertwined,

said plate fibers are composed of collagen fibers having a diameter of 5-8 μm , wherein the collagen fibers overlap in the coaxial direction,

said fibers are composed of bundled rows of narrow collagen fibers having a diameter of 1-3 μm alternately overlapping as warp and weft,

said narrow fibers are composed of bundled fine collagen fibers having a diameter of 30-70 nm, and

said fine fibers are composed of ultra-fine collagen fibers having a diameter of 3-7 nm that are comprised of several bundled collagen molecules.

2. The collagen material according to claim 1, wherein said substance having biocompatibility that can be degraded and absorbed in the body and being filled into said matrix is fibrous collagen fiber containing ultra-fine fibers of collagen newly formed by performing a freezing and freeze-drying procedure to a hydrochloric acid solution of extracted collagen introduced into said matrix.

3. The collagen material according to claim 1, wherein said substance having biocompatibility that can be degraded and absorbed in the body and being filled into said matrix is selected from the group consisting of polyglycolic acid, polylactic acid, copolymer of glycolic acid and lactic acid, polydioxanone, copolymer of glycolic acid and trimethylene carbonate, and a mixture of polyglycolic acid and polylactic acid, and is used as a mesh-like sheet or tube, or a non-woven fabric-like sheet or tube.